AMENDMENTS TO THE SPECIFICATION

Please amend the specification as follows:

Amend the paragraph [0011] beginning on page 4, line 28, through page 5, line 53 as follows:

Fig. 10 is a diagram illustrating spatial interference fringes according to the conventional time resolved, nonlinear complex susceptibility measuring apparatus of Sagnac interferometer type wherein the abscissa axis represents the position of the CCD camera. A difference in phase between the probe light and the reference light produced by irradiating the test specimen with the excitation light pulse can be found by measuring a deviation of peaks of interference fringes when such a difference in phase is produced between the probe light and the reference light by irradiating the test specimen with the excitation light pulse from peaks of interference fringes where there is no difference in phase between the probe light and the reference light. This diagram shows interference fringes when a difference in phase is produced between the probe light and the reference light by irradiating the test specimen with the excitation light pulse. As can be seen from the diagram, the interference fringes are shorter in period when the position is positive and are longer in period when the position is negative and are thus asymmetrical in period about the position of 0 mm. This phenomenon arises due to the fact that an equiphase wave ~~sur plane~~ surface is bent by the probe light passing through an excited test specimen, i. e., the phase of the probe light in a cross section perpendicular to its beam axis fluctuates. The measurement of a difference in phase will be made theoretically possible when the interference

fringes are of an ideal sine wave, and gives rise to a large error under the influence of a difference in period of interference fringes in the conventional method wherein a phase difference is to be found from a deviation in peaks of interference fringes.

Amend the paragraph [0013] beginning on page 5, line 68, through page 6, line 73 as follows:

Thus, a conventional time resolved, nonlinear complex susceptibility measuring apparatus of Sagnac interferometer type, in which optical paths for a probe and a reference light are shifted to form spatial interference fringes, has the problem that because of distortions it causes in the wave ~~sur plane~~ surface of probe light, it cannot measure a nonlinear complex susceptibility correctly.

Amend the paragraph [0015] beginning on page 6, line 92, as follows:

In view of the above, it is an object of the present invention to provide a time resolved, complex susceptibility measuring apparatus that is capable of measurement unaffected by any distortion in the wave ~~sur plane~~ surface of a probe light.

Amend the paragraph [0019] beginning on page 8, line 22, through page 9, line, 42 as follows:

The polarized light splitting Sagnac type interference light path comprises a plurality of mirrors and the polarized light beam splitter that serves also to provide a light input and a light output end. The polarized light beam splitter which at its reflecting ~~sur-plane~~ plane reflects a light component having an electric field vector in a direction perpendicular to the light incident plane and transmits a light component having an electric field vector in a direction parallel to the light incident plane splits an elliptically polarized light whose fixed phase difference is compensated for by the phase difference compensating mechanism into a polarized light reflecting on the reflecting ~~sur-plane~~ plane of the polarized light beam splitter and having an electric field vector perpendicular to an interference light path plane and a polarized light transmitted through the polarized light beam splitter and having an electric field vector parallel to the interference light path plane. These two polarized lights are used as a reference and a probe light or a probe and a reference light, respectively. The mirrors are disposed so that the two polarized lights split by the polarized light beam splitter propagate through the same light path and in mutually opposite directions, namely propagate clockwise and counterclockwise, to return to the polarized light beam splitter where they are again combined together into a single light beam.

Amend the paragraph [0032] beginning on page 14, line 28, through pages 15-16, line 68 as follows:

Fig. 2(b) is a diagram illustrating a relationship in orientation of the linearly polarized light 22' whose direction of polarization is reoriented in a desired direction by rotating the $\lambda/2$ wavelength plate 24, with a fast and a slow axis F_4 and S_4 of the $\lambda/4$ wavelength plate 25. It is shown that the fast and slow axes F_4 and S_4 make an angle of 90° with each other and that the fast axis F_4 is fixed at an angle of 45° to the X direction (in which the reference light 5 is polarized). Assuming that the linearly polarized ~~light 22'~~ light 22 makes an angle of ϕ with the fast axis F_4, the linearly polarized light 22' has an amplitude E, a frequency ω, a propagation constant k and a propagation direction z and time is t, the component E_f to the fast axis F_4 of the linearly polarized light 22' can be expressed by

$$E_f = E\cos\varphi\cos(\omega t - kz) \qquad (1)$$

and the component E_s to the slow axis S_4 of the linearly polarized light 22' can be expressed by

$$E_s = E\sin\varphi\cos(\omega t - kz) \qquad (2)$$

Since the $\lambda/4$ wavelength plate produces a phase difference of $\pi/2$ between the polarized light component to the fast axis and the polarized light component to the slow axis, if the phase advanced component E_f' past the $\lambda/4$ wavelength plate 25 is:

$$E_f' = E\cos\varphi\cos(\omega t - kz) \qquad (3),$$

then the phase delayed component E_s' becomes:

$$E_s' = E\sin\varphi\cos(\omega t - kz - \pi/2)$$
$$= E\sin\varphi\sin(\omega t - kz) \qquad (4).$$

If the phase advanced and delayed components E_f' and E_s' past the λ /4 wavelength plate 25 are decomposed into their respective X-axial and Y-axial components, the X-axial component E_x' will be:

$$\begin{aligned} E_x' &= \tfrac{1}{\sqrt{2}} E \cos\varphi \cos(\omega t - kz) \\ &- \tfrac{1}{\sqrt{2}} E \sin\varphi \sin(\omega t - kz) \\ &= \tfrac{1}{\sqrt{2}} E \cos(\omega t - kz + \varphi) \end{aligned} \qquad (5)$$

and the Y-axis component E_y' will be:

$$\begin{aligned} E_y' &= \frac{1}{\sqrt{2}} E \cos\varphi \cos(\omega t - kz) \\ &+ \frac{1}{\sqrt{2}} E \sin\varphi \sin(\omega t - kz) \\ &= \frac{1}{\sqrt{2}} E \cos(\omega t - kz - \varphi) \qquad (6)\ . \end{aligned}$$

As is apparent from the equations (5) and (6), a phase difference of 2ϕ comes to be between the X-axial and Y-axial components. To wit, rotating the $\lambda/2$ wavelength plate by any angle ϕ allows adjusting the phase difference between the X-axial and Y-axial components at any corresponding value, thereby compensating for and making zero a fixed phase that may be produced between the reference and probe lights by any unavoidable cause such as reflection or refraction.